

What is Claimed is:

1. A noninvasive and remote method of identifying and measuring the neurological manifestation in speech of early non-tremor phase of Parkinson's and other neuro diseases comprising:

converting a subject's spoken words into corresponding electrical signals;

amplifying said electrical signals;

frequency band limiting, and signal conditioning the said electrical signals to produce modified signals;

determining the envelope of said modified signals;

determining the spectral density of said modified signals to provide a density signal;

smoothing the density signal;

determining the spectral envelope of the smoothed spectral density signal;

determining the presence of a depression in said spectral envelope;

determining the amplitude of said depression with reference to the average of two shoulder peaks in said density signal on either side of said depression; and

determining the ratio of the amplitudes of the depression and said average db level of said shoulder peaks.

2. The method of claim 1, further including multiplying said ratio by a constant  $k$  to obtain a Parkinson Severity Index for Parkinson.

3. The method of claim 2, further including means for determining a compressed range for said Severity Index by selecting a narrow bandwidth corresponding to the first formant of the said speech signal.
4. The method of claim 2, further including converting said spoken words via telephony computer boards for on-the-telephone interactive operation.
5. The method of claim 2, further including detections parameters corresponding to Parkinson neuro disorders.
6. The method of claim 2, further including detecting the onset of early non-tremor phase of Parkinson and other neuro disorders.
7. The method of claim 2, further including separation of Parkinson from neuro atrophy or dyskinesia and brain cell damage and other neuro disorders, by using different parameters than those of Parkinson.
8. The method of claim 2, further including providing prediagnostic assistance to a physician in treating neuro disorders.
9. The method of claim 2, further including assisting the pharmaceutical industry to in developing medicines for different neuro disorders identifying these disorders.

10. The method of claim 2, further including detecting brain cell damage.
11. The method of claim 2, further including detecting dyskinesia.
12. The method of claim 2, further including detecting neuro atrophy.
13. The method of claim 2, further including detecting neuropathy.
14. The method of claim 2, further including identifying other disorders yet unspecified by neurologists.